

1620 GENERAL PROGRAM LIBRARY

General EDIT Subroutine

1.6.128

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COMMON USERS GROUP PROGRAM REVIEW AND EVALUATION
(fill out in typewriter, ink or pencil)

O Program No. _____ Date _____

Program Name: _____

1. Does the abstract adequately describe what the program is and what Yes _____ No _____
it does?

Comment _____

2. Does the program do what the abstract says? Yes _____ No _____

Comment _____

3. Is the description clear, understandable, and adequate? Yes _____ No _____

Comment _____

4. Are the Operating Instructions understandable and in sufficient detail? Yes _____ No _____

Comment _____

Are the Sense Switch options adequately described (if applicable)? Yes _____ No _____

Are the mnemonic labels identified or sufficiently understandable? Yes _____ No _____

Comment _____

5. Does the source program compile satisfactorily (if applicable)? Yes _____ No _____

Comment _____

6. Does the object program run satisfactorily? Yes _____ No _____

Comment _____

7. Number of test cases run _____. Are any restrictions as to data, Yes _____ No _____

size, range, etc. covered adequately in description?

Comment _____

8. Does the Program meet the minimal standards of COMMON? Yes _____ No _____

Comment _____

9. Were all necessary parts of the program received? Yes _____ No _____

Comment _____

10. Please list on the back any suggestions to improve the usefulness of the program.

These will be passed onto the author for his consideration.

Please return to:

Your Name _____

Company _____

Mr. Richard L. Pratt
Data Corporation
7500 Old Xenia Pike
Dayton, Ohio 45432

Address _____

Users Group Code _____

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GENERAL EDIT SUBROUTINE
WITH NEW MACRO INSTRUCTION

DECK KEY

1. Source Deck
2. Object Subroutine Deck
with header and trailer

Modifications or revisions to this program, as they occur, will be announced in the appropriate Catalog of Programs for IBM Data Processing Systems. When such an announcement occurs, users should order a complete new program from the Program Information Department.

LARRY SALUS
ELECTRONIC DATA PROCESSING INC.
60 CORAL CENTER
FORT LAUDERDALE, FLORIDA

APRIL 1965

1620 USERS GROUP LIBRARY
PROGRAM ABSTRACT

1. TITLE: General EDIT Subroutine. Subject Classification: 1-6
2. Author, Organization: Larry D. Salus, Electronic Data Processing, Inc.
Date: May 7, 1965. Users Group Membership Code: 1400
3. Direct Inquiries to: Larry Salus - Electronic Data Processing, Inc., 60 Coral Center, Fort Lauderdale, Fla., Phone: 305-565-1873.
4. Description/Purpose: (5. Method, 6. Restriction/Range, When Applicable): To provide the 1620 SPS Programmer with an ease of editing similar to the hardware EDIT of the IBM 1401 Systems. Incorporated is a new Macro instruction with three operands which specifies the field to be edited, where the edited field is to be stored and the format of the editing desired.
7. Specifications:
 - a. Storage used by program: 1,418
 - b. Equipment required by program: Card; TNS,TNF,MF; Indirect Addressing; 1620 Model I
Can program be used on lesser machine? No.
 - c. Programmed in: SP035
 - d. Type of Program: Subroutine for use with SP-035
8. The General EDIT Subroutine generates its own linkage and return address and therefore does not need the use of IBM's "Pick" Subroutine.

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PURPOSE.

TO PROVIDE THE 1620 SPS PROGRAMMER WITH AN EASE OF EDITING SIMILAR TO THE HARDWARE EDIT OF THE IBM 1401 SYSTEMS. INCORPORATED IS A NEW MACRO INSTRUCTION WITH THREE OPERANDS WHICH SPECIFIES THE FIELD TO BE EDITED, WHERE THE EDITED FIELD IS TO BE STORED, AND THE FORMAT OF THE EDITING DESIRED.

MACHINE CONFIGURATION.

THE GENERAL EDIT SUBROUTINE WAS DESIGNED FOR A 1620-1443 SYSTEM, BUT IS APPLICABLE FOR OUTPUT ON CARDS, TAPE, AND TYPEWRITER AS WELL AS THE PRINTER

BASIC PROGRAM MATERIAL.

TO USE THE GENERAL EDIT SUBROUTINE A SLIGHT MODIFICATION OF THE SPS PROCESSER IS NECESSARY. INSERT A CARD IN THE FOLLOWING FORMAT NINE CARDS FROM THE REAR OF SP-020 OR SP-035.

COL.	COL.
1-8 M5444963	63-64 -1
9-10 18	65-69 J8013
11 P	70-74 J8024
12	
13-62 BLANKS	

CONSULT YOUR IBM MANUAL TO INTERFACE THE NEW SUBROUTINE INTO THE GENERAL SUBROUTINE DECK.

EDIT SUBROUTINE

OP CODE EDIT COL. 12-16

A OPERAND THE ADDRESS OF THE UNITS POSITION OF THE NUMERICAL FIELD TO BE EDITED WITH HIGH ORDER FLAG

B OPERAND ADDRESS OF THE OUTPUT AREA

C OPERAND ADDRESS OF THE CONTROL WORD

FORMAT - EDIT A,B,C

NOTE. THERE MUST NOT BE A COMMA AFTER THE C OPERAND IN ANY MACRO

CONTROL WORD.

CONTAINS FORMAT OF EDITED NUMBER

1. THE CONTROL WORD MUST BE DEFINED AS A DAC.

2. MAXIMUM LENGTH OF THE CONTROL WORD IS 20 ALPHA CHARACTERS.

NOTE. THE CONTROL WORD CAN BE LARGER BUT NOT SMALLER THAN THE FIELD TO BE EDITED.

3. ZEROS IN THE CONTROL WORD INDICATE POSITIONS TO BE FILLED.

4. ANY SPECIAL OR ALPHA CHARACTER MAY BE PUT IN THE CONTROL WORD EXCEPT AN EQUAL SIGN, THIS WOULD BE TREATED AS AN @.

5. IF A SPECIAL OR ALPHA CHARACTER APPEARS IN THE FIRST CHARACTER OF THE DAC, THIS WILL INDICATE A FLOATING SPECIAL OR ALPHA CHARACTER.

6. IF AN @ SIGN APPEARS IN THE CONTROL WORD, THIS INDICATES THAT CHARACTERS TO THE RIGHT OF THE @ SIGN WILL NOT BE SUPPRESSED

7. THERE MUST BE THREE POSITIONS TO THE RIGHT OF THE UNITS POSITION OF THE CONTROL WORD.

CHARACTERS IN ANY OF THESE THREE POSITIONS WILL APPEAR WHEN THE NUMBER TO BE EDITED IS NEGATIVE.

8. FOLLOWING THE THIRD POSITION, AS ABOVE, THERE MUST BE AN ALPHA RECORD MARK. THE RECORD MARK WILL NOT BE TRANSFERRED TO THE OUTPUT AREA

1.

2.

CONTROL WORD EXAMPLE...

CONTRLDAC 14,\$00,000.00 CR@,
1 2 5 3 6 4 7 8

EXAMPLES

EDITNUMB,OUTPUT,CTRL
WILL BE ASSEMBLED AS.
TFM PICK+11,*+23,
B SUBR,
DORG*-4,
DSA NUMB,OUTPUT,CTRL

EXAMPLE 1.

NUMB- -047531
CTRL- DAC 18,\$00,000,000.00 CR@,
RESULT- \$475.31 OUTPUT IS THE ADDRESS OF THE UNITS POSITION
IF NUMB WAS NEGATIVE- \$475.31 CR THE R IS IN OUTPUT+6

EXAMPLE 2.

NUMB- -0000000
CTRL- DAC 17,00,000,000.00 CR@,
RESULT- .00
WITHOUT THE @ BEFORE THE DECIMAL POINT THE EDITED FIELD WOULD
CONTAIN ALL BLANKS.

EXAMPLE 3.

NUMB- -012345
CTRL- DAC 19,00ANS00,000.00*MF\$@,
RESULT- ANS00,123.45*
IF NUMB WAS NEGATIVE-- ANS00,123.45*NEG

EXAMPLE 4.

NUMB- -52565
CTRL- DAC 12,00/00/00 @,
RESULT 5/25/65

TIME

THE TIME OF THE EDIT MACRO HAS TWO FACTORS.

1. THE LENGTH OF THE FIELD TO BE EDITED
2. THE TYPE OF EDITING SPECIFIED

EXAMPLE. J2345 WITH \$0,000.00 CR
EDITING THIS FIELD TAKES 85 MILLISECONDS.

TO MODIFY EDIT SUBROUTINE TO HANDLE FIELDS LARGER THAN THE 20 SPECIFIED,
CHANGE THE LENGTH OF THE THREE DC'S, WORK, CON, KLEAR AND
THE DSS STORE. FOR EVERY SINGLE INCREMENT OF WORK, INCREMENT STORE,
CON, AND KLEAR BY TWO. ALSO MAKE THE NECESSARY CHANGES TO THE LAST
TWO TRANSMIT FIELDS IN THE RESET ROUTINE.

THE EDIT SUBROUTINE CALCULATES ITS OWN LINKAGE AND RETURN ADDRESS
AND THEREFORE DOES NOT NEED THE USE OF THE IBM -PICK- SUBROUTINE.

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PAGE

EDIT SUBROUTINE
 DATED MARCH 1965
 PROGRAMMED BY LARRY SALUS
 FOR ELECTRONIC DATA PROCESSING INC.
 FORT LAUDERDALE, FLORIDA
 DORG 5000,
 DC 50,0,350,
 CF ZER,*,*,0,
 TF ADFLD,PICK+11,01,
 TF EDFLD,PICK+11,0111,
 AM ADFLD,5,010,
 TF PUT,ADFLD,0111,
 AM ADFLD,5,010,
 TF CONTRL,ADFLD,0111,
 AM ADFLD,1,010,
 TF EXIT+6,ADFLD,01,
 TF WORK,EDFLD,0111,
 SM CONTRL,1,010,
 CF NEG,,0,
 TFM AM+8,0,010,
 MF NEG,WORK,01,
 * THIS FINDS FIRST SNIG DIGIT,
 *
 * THIS FILLS IN THE CONTROL FIELD
 *
 * THIS FINDS LOW ORDER POSITION OF CONTROL
 * TESTS FOR ANY LEADING ZEROS
 *
 BNR **+20,STORE+1,017,
 B REC,,0,
 DORG #-4,
 BD BD,BNR+11,0111,
 AM BNR+11,2,010,
 NOP **+8,1,010,
 B BNR,,0,
 DORG #-4,
 BD SM BNR+11,1,010,
 TD **+34,BNR+11,0111,
 AM BNR+11,1,010,
 05000 00050
 05000 L3 05243 00000
 05012 K0 05551 05011
 05024 K0 05883 0501J
 05036 J1 05551 000-5
 05048 K0 05987 0555J
 05060 J1 05551 000-5
 05072 K0 05495 0555J
 05084 J1 05551 000-1
 05096 K0 06290 05551
 05108 K0 06310 0588L
 05120 J2 05495 000-1
 05132 L3 05667 00000
 05144 J6 05376 000-0
 05156 PJ 05667 06310
 05168 MM 05188 -6310
 05180 M9 05208 00000
 05187
 05188 J2 05179 000-i
 05200 M9 05168 00000
 05207
 05208 ML 05300 0517R
 05220 J1 05179 000-1
 05232 L2 0517R 00000
 05243 00000
 05244 JM 05179 -6310
 05256 M7 05208 01200
 05268 ML 05300 06310
 05280 LJ 06311 0549N
 00350 00050
 05292 M9 06080 00000
 05300 J0 05179 -6310
 05312 LJ 06311 0549N
 05324 MN 05344 -6312
 05336 M9 05516 00000
 05343
 05344 ML 05388 0533N
 05356 J1 05335 000-2
 05368 M1 05376 000-1
 05380 M9 05324 00000
 05387
 05388 J2 05335 000-1
 05400 KN 05434 0533N
 05412 J1 05335 000-1
 01030
 01040
 01050
 01060
 01070
 01080
 01090
 01100
 01110
 01120
 01130
 01150
 01160
 01170
 01180
 02010
 05424 I3 05356 00307
 05436 J5 05368 00001
 05448 J5 0533N 00000
 05460 J2 05335 000-1
 05472 J5 0533N 00007
 05484 L2 05243 00000
 05495 00005
 05496 J1 05335 000-1
 05508 M9 05356 00000
 05515
 05516 J5 05368 00004
 05528 J2 05335 000-7
 05540 L2 0533N 00000
 05551 00005
 05552 J2 05335 000-1
 05564 J2 05376 000-4
 00350 00050
 05576 KU 06390 0533N
 05588 JN 05699 -6390
 05600 MM 05688 -6310
 05612 JN 05802 -5644
 05624 L3 0561J 00000
 05635 00000
 05636 I19 05688 00000
 05643
 05644 J1 05699 000-1
 05656 L2 0569R 00000
 05667 00000
 05668 JN 05802 -5600
 05680 M9 05836 00000
 05687
 05688 4J 00000 -6390
 05700 J2 05699 000-1
 05712 KN 05746 0569R
 05724 J1 05699 000-1
 05736 M3 05804 00303
 05748 KN 0569R 0561J
 05760 J2 05611 000-1
 05772 J2 05699 000-2
 05784 J2 05376 000-1
 05796 M9 05600 00000
 05803
 05804 J2 05699 000-2
 05816 J2 05376 000-1
 05828 M9 05688 00000
 05835
 05836 MM 05928 05243
 05848 J4 05376 000-0
 00350 00050
 05860 M7 05916 01100
 05872 L3 0569R 00000
 05883 00005
 05884 J2 05699 000-2
 05896 J2 05376 000-1
 05908 M9 05848 00000
 RD AM-12,307,0,
 TDM AM,1,0,
 TDM BNR+11,0,06,
 SM BNR+11,1,010,
 TDM BNR+11,7,06,
 SF ZER,,0,
 CTRNL DC 5,0,*,
 AM BNR+11,1,010,
 B AM-12,,0,
 DORG #-4,
 REC TDM AM,4,0,
 SM BNR+11,7,010,
 SF BNR+11,,06,
 ADFLD DC 5,0,*,
 SM BNR+11,1,010,
 SM AM+8,4,010
 DC 50,0,350,
 TF CON,BNR+11,0111,
 TFM OUT+11,CON,017,
 BNF OUT,WORK,017,
 TFM SANCH+6,TD,017,
 CF SEC+11,,06,
 CK DS 0,*,
 B OUT,,0,
 DORG #-4,
 TD AM OUT+11,1,010,
 SF OUT+11,,06,
 NEG DS 0,*,
 TFM SANCH+6,SEC,017,
 B OUTPUT,,0,
 DORG #-4,
 * THIS FILLS IN THE CONTROL FIELD
 *
 CUT NOP **-*,CON,17,
 SM OUT+11,1,010,
 TD **+34,CUT+11,0111,
 AM OUT+11,1,010,
 BD RECOM,303,0,
 TD OUT+11,SEC+11,01611,
 SF SEC+11,1,010,
 SM OUT+11,2,010,
 SM AM+8,1,010
 SANCH B SEC,,0,
 DORG #-4,
 RECOM SM OUT+11,2,010,
 SM AM+8,1,010,
 B OUT,,0,
 DORG #-4,
 OUTPUT BNF OUTP,ZER,01,
 CM AM+8,0,010,
 DC 50,0,350,
 RHN OUTP-12,,0,
 CF OUT+11,,06,
 EDFLD DC 5,0,*,
 SM OUT+11,2,010,
 SM AM+8,1,010,
 B OUTPUT+12,,0,

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05915
 05916 L2 0569R 00000
 * DORG **-4,
 SF OUT+11,,06,
 * TESTS FOR A DOLLAR SIGN
 *
 05928 J1 05495 000-1
 05940 KO 05635 0549N
 05952 J4 05635 000P0
 05964 M6 06012 01200
 05976 L3 0569R 00000
 05987 00005
 05988 J2 05699 000-1
 06000 KO 0569R 05635
 *
 * PUTS EDITED FIELD IN OUTPUT AREA
 *
 06012 KO 0598P 06390
 06024 MM 06200 05667
 06036 J1 05335 000-6
 06048 J1 05987 000-6
 06060 KO 0598P 0533N
 06072 M9 06200 00000 03060
 *
 * IF NO SNIIG DIGIT IT IS HANDLED HERE
 *
 06080 J6 05589 000M9
 06092 JO 05594 -6112
 06104 M9 05324 00000
 06111
 06112 J6 05589 000J6
 06124 JO 05594 -5699
 00326 00026
 06136 JO 05699 -6389
 06148 J2 05376 000-1
 06160 MM 06180 05243
 06172 M9 05836 00000
 06179
 06180 J6 06390 000-0
 06192 M9 06012 00000
 06199
 06200 JO 05179 -6310 04030 RESET
 06212 JO 05335 -6312
 06224 JO 05611 -6310 04050
 06236 JO 05699 -6390 04060
 06248 KO 06390 06430
 06260 KO 06310 06410
 06272 KO 06350 06430
 06284 49 00000 00000 EXIT
 06291
 06310 00020 05010 WORK DC 20,0
 06311 00040 05020 STORE DSS 40,
 06390 00040 05030 CON DC 40,0,
 06430 00040 KLEAR DC 40,0,
 05000 DEND PICK,

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05168
 FOUND 05208
 ZER 0524
 05188
 05368
 BD 05388
 CONTRL 0549
 05388
 CK 0563
 05600
 SANCH 05796
 RECOM 0580
 05688
 OUTPU 0601
 05987
 PUT 05987
 06284
 EXIT 06284
 06430
 KLEAR 06430

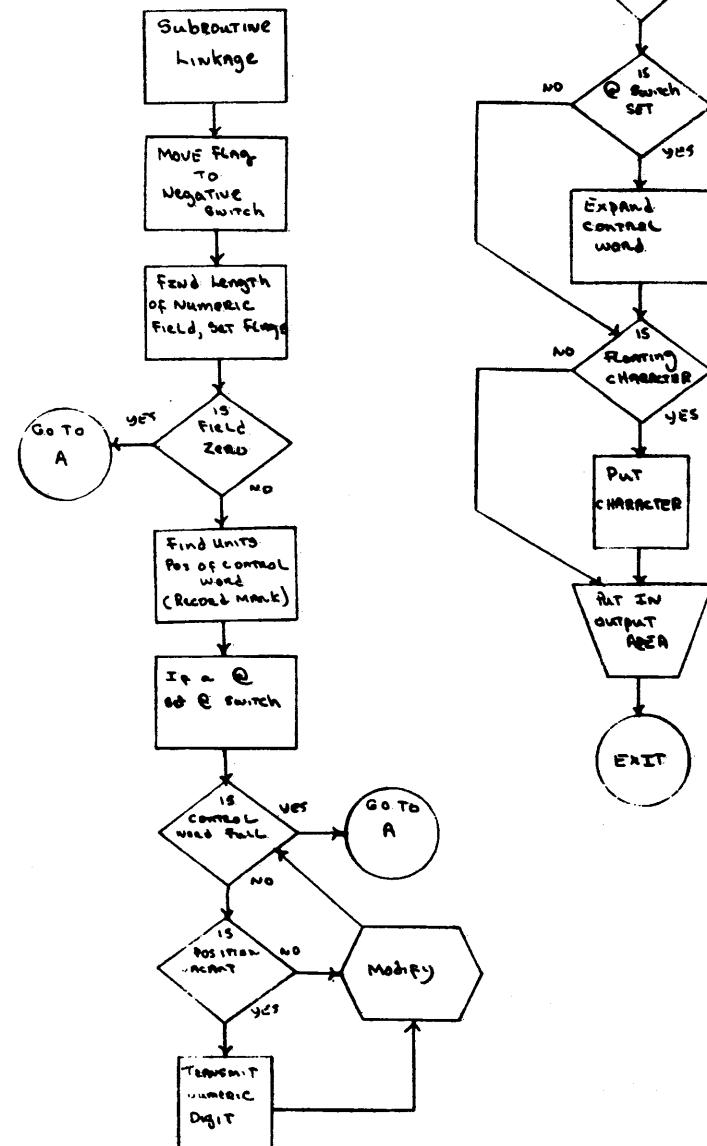
LOOK 05168
 RNR 05324
 AM 05368
 REC 05516
 ADFLD 05551
 SET 05588
 TD 05644
 NEG 05667
 OUT 05688
 OUTPUT 05836
 EDFLD 05883
 RETU 06112
 OUTP 05928
 STORE 06311
 CON 06390
 RESET 06200
 CONN 06390

BASIC FLOW

TROUBLE SHOOTING

FOR REASONS OF CORE AND TIME THE EDIT SUBROUTINE DOES NOT CHECK FOR ERRORS IN FORMAT. IN CASE OF A CHECK STOP WITHIN THE SUBROUTINE GO OVER THE FOLLOWING CHECK LIST.

1. THERE MUST NOT BE A COMMA AFTER THE C OPERAND.
2. IS THE CONTROL WORD DEFINED AS A DAC.
3. IS THERE A RECORD MARK IN THE LAST POSITION OF THE CONTROL WORD.
4. HAVE THE THREE POSITIONS TO THE RIGHT OF THE RECORD MARK BEEN ALLOWED FOR NEGATIVE NUMBERS.
5. ARE THERE AS MANY OR MORE ZEROS IN THE CONTROL WORD AS NUMERICAL POSITIONS OF THE FIELD TO BE EDITED.



SOURCE LIST.

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*      EDIT SUBROUTINE
*      DATED MARCH 1965
*      PROGRAMMED BY LARRY SALUS
*      FOR ELECTRONIC DATA PROCESSING INC.
*      FORT LAUDERDALE, FLORIDA

DORG5000,
DC 50,0,350,
PICK CF ZER,*-*,,0,
TF ADFLD,PICK+11,01,
TF EDFLD,PICK+11,0111,
01030 AM ADFLD,5,010,
01040 TF PUT,ADFLD,0111,
01050 AM ADFLD,5,010,
01060 TF CONTRL,ADFLD,0111,
AM ADFLD,1,010,
TF EXIT+6,ADFLD,01,
01070 TF WORK,EDFLD,0111,
SM CONTRL,1,010,
CF NEG,,0,
TFM AM+8,0,010,
MF NEG,WORK,01,
*
*      THIS FINDS FIRST SNIG DIGIT,
*
01080LOOK BNF MOD,WORK,017,
01090 B FOUND,,0,
DORG*-4,
01100MOD SM LOOK+11,1,010,
01110 B LOOK,,0,
DORG*-4,
01120FOUND BD DIGIT,LOOK+11,0111,
01130 AM LOOK+11,1,010,
SF LOOK+11,,06,
ZER DS 0,*,
01150 CM LOOK+11,WORK,017,
01160 BNZ FOUND,,0,
BD DIGIT,WORK,01,
TR STORE,CONTRL,0111,
DC 50,0,350,
01170 B NOSNIG,,0,
DORG*-4,
01180DIGIT TFM LOOK+11,WORK,017,
02010 TR STORE,CONTRL,0111,
*
*      THIS FINDS LOW ORDER POSITION OF CONTROL FIELD
*
*      TESTS FOR ANY LEADING ZEROS
*
BNR BNR *+20,STORE+1,017,
B REC,,0,
DORG*-4,
BD BD,BNR+11,0111,
AM BNR+11,2,010,
AM NOP *+8,1,010,
B BNR,,0,
DORG*-4,
BD SM BNR+11,1,010,
TD *+34,BNR+11,0111,
AM BNR+11,1,010,
BD AM-12,307,0,
TDM AM,1,0,
TDM BNR+11,0,06,
SM BNR+11,1,010,

```

TDM BNR+11,7,06,
 SF ZER,,0,
 CONTRLDC 5,0,*,
 AM BNR+11,1,010,
 B AM-12,,0,
 DORG*-4,
 REC TDM AM,4,0,
 SM BNR+11,7,010,
 SF BNR+11,,06,
 ADFLD DC 5,0,*,
 SM BNR+11,1,010,
 SM AM+8,4,010
 DC 50,0,350,
 02070 TF CON,BNR+11,0111,
 SET TFM OUT+11,CON,017,
 02080SEC BNF OUT,WORK,017,
 TFM SANCH+6,TD,017,
 CF SEC+11,,06,
 CK DS 0,*,
 B OUT,,0,
 DORG*-4,
 TD AM OUT+11,1,010,
 SF OUT+11,,06,
 NEG DS 0,*,
 TFM SANCH+6,SEC,017,
 B OUTPUT,,0,
 DORG*-4,
 * THIS FILLS IN THE CONTROL FIELD
 *
 OUT NOP **-,CON,17,

SM OUT+11,1,010,
 TD **34,OUT+11,0111,
 AM OUT+11,1,010,
 BD RECOM,303,0,
 TD OUT+11,SEC+11,01611,
 SM SEC+11,1,010,
 SM OUT+11,2,010,
 SM AM+8,1,010
 SANCH B SEC,,0,
 DORG*-4,
 RECOM SM OUT+11,2,010,
 SM AM+8,1,010,
 B OUT,,0,
 DORG*-4,
 OUTPUTBNF OUTP,ZER,01,
 CM AM+8,0,010,
 DC 50,0,350,
 BNH OUTP-12,,0,
 CF OUT+11,,06,
 EDFLD DC 5,0,*,
 SM OUT+11,2,010,
 SM AM+8,1,010,
 B OUTPUT+12,,0,
 DORG*-4,
 SF OUT+11,,06,
 * TESTS FOR A DOLLAR SIGN
 *
 OUTP AM CONTRL,1,010,
 TF CK,CONTRL,0111,
 CM CK,70,010,

```

        BE OUTPU,,0,
        CF OUT+11,,06,
PUT      DC 5,0,*,
        SM OUT+11,1,010,
        TF OUT+11,CK,016,
*
*       PUTS EDITED FIELD IN OUTPUT AREA
*
OUTPUT TF PUT,CON,016,
        BNF RESET,NEG,01,
        AM BNR+11,6,010,
        AM PUT,6,010,
        TF PUT,BNR+11,01611,
03060    B RESET,,0,
        DORG*-4,
*
*       IF NO SNIG DIGIT IT IS HANDLED HERE
*
NOSNIGTFM SET+1,49,010,
        TFM SET+6,RETU,017,
        B BNR,,0,
        DORG*-4,
RETU    TFM SET+1,16,010,
        TFM SET+6,OUT+11,017,
        DC 26,0,326,
        TFM OUT+11,CON-1,017,
        SM AM*8,1,010,
        BNF **20,ZER,01,
        B OUTPUT,,0,
        DORG*-4,
        TFM CON,0,010,

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